Assistance Data, this data can be delivered from the network **32** to the mobile terminal **10** in a point-to-point manner using, by example, normal IMSI Attach and Location Update procedures. Benefits of this approach include the fact that the capacity of the network **32** is not detrimentally affected, and no special new signalling arrangements need to be established.

One problem which this invention overcomes is that the additional point-to-point connection between the mobile terminal **10** and the network **32**, to the GPS Assistance Data **34**, need not be established, as the same end result can be achieved with, by example, IMSI Attach and Location Update point-to-point connections.

Another advantage made possible by this invention is the possibility to implement a Network Assisted Mobile Terminal Based GPS system without requiring that a point-to-multipoint broadcast channel be specified for the delivery of the GPS Assistance Data from the network **32** to the GPS-capable mobile terminals **10**.

Furthermore, no compromise need be made in the amount of GPS Assistance Data that can be transmitted to a GPS capable mobile terminal **10**, since the point-to-point connection to the network **32** in the IMSI Attach and Location Update signalling provides all the required bandwidth to transmit the GPS Assistance Data with the desired accuracy.

Referring now to FIG. **3**, a method in accordance with this invention proceeds as follows. At Step A the mobile station **10** requests the GPS Assistance Data using a supplementary service, preferably by using a Mobile Originated Location Request (MO-LR). The request is made to the network **32**, such as to the Mobile Switching Center (MSC) **33** network component (see FIG. **1**). At Step B the MSC **33** checks a subscriber profile to determine if the mobile station **10** is authorized to receive the GPS location service. Assuming that this check succeeds, at Step C the MSC **33** requests the Serving Mobile Location Center (SMLC), assumed for this example to be the unit **34** of FIG. **1**, to deliver the requested GPS Assistance Data to the mobile station **10**. At Step D the SMLC **34** delivers the GPS Assistance Data to the mobile station **10**, using a RRLP protocol, and then informs the MSC **33** that the requested GPS Assistance Data has been delivered. The MSC **33** then makes any necessary billing reports, and informs the mobile station **10** that the supplementary service has been fulfilled.

The MO-LR after location update request may thus be used to request GPS Assistance Data using the follow-on procedure specified in, by example, GSM 04.08. Note, for example Section 4.4.1, Location Updating Procedure, Section 4.4.2, Periodic Updating and Section 4.4.3, IMSI Attach Procedure, as well as the above-mentioned Section 10.5.3.5, Location Updating Type, and Table 10.65/GSM 04.08 Location Updating Type Information Element, where the coding for the FOR bit is specified.

It should be noted that the invention can be implemented in mobile terminals for LCS applications as a part of mobile terminal based/assisted E-OTD/GPS location methods.

While described in the context of a specific GSM embodiment, those skilled in the art should realize that the teachings of this invention apply as well to other types of TDMA systems, as well as to other type of multiple access systems, such as CDMA and wideband CDMA (WCDMA) systems. Thus, while the invention has been particularly shown and described with respect to preferred embodiments thereof, it will be understood by those skilled in the art that changes in form and details may be made therein without departing from the scope and spirit of the invention.

What is claimed is:

1. A method for providing GPS Assistance data to a mobile station, comprising steps of:

making a request for the GPS Assistance Data with a mobile station using a Mobile Originated Location Request after a Location Update with a Follow-On Request pending; and

delivering the requested GPS Assistance Data to the mobile station in a point-to-point manner using a Follow-On procedure.

2. A method as in claim **1**, wherein the Location Update is one of an IMSI (International Mobile Subscriber Identity) Attach, a Normal Location Update, or a Periodic Location Update.

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